EO/US
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2641

PATENT COOPERATION TREATY

9/622396

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing: 10 September 1999 (10.09.99)	
International application No.: PCT/IT99/00040	Applicant's or agent's file reference: dagoPCT-1
International filing date: 19 February 1999 (19.02.99)	Priority date: 03 March 1998 (03.03.98)
Applicant: D'AGOSTINI, Giovanni	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International preliminary Examining Authority on:

14 July 1999 (14.07.99)

[ ] in a notice effecting later election filed with the International Bureau on:

_____

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer: J. Zahra
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992)

2827326

PATENT COOPERATION TREA

PCT

09/622356

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
dagoPCT-1		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/IT 99/ 00040	19/02/1999	03/03/1998
Applicant		
D'AGOSTINI ORGANIZZAZIONE S.R.L. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

[ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

[ ] contained in the international application in written form.

[ ] filed together with the international application in computer readable form.

[ ] furnished subsequently to this Authority in written form.

[ ] furnished subsequently to this Authority in computer readble form.

[ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

[ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

[X] the text is approved as submitted by the applicant.

[ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

[X] the text is approved as submitted by the applicant.

[ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 1

[X] as suggested by the applicant.

[ ] None of the figures.

[ ] because the applicant failed to suggest a figure.

[ ] because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IT 99/00040

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 349 368 A (TAKEDA KIMIHITO ET AL) 20 September 1994 see abstract; claims 1-8 see column 2, line 15 - line 26 see column 7, line 11 - column 9, line 49; figures 7-12	1-8
A	EP 0 176 858 A (SHARP KK) 9 April 1986 see abstract; claims 1-5 see page 16, line 1 - page 29, line 6; figures 6-22	1-8
A	US 5 257 187 A (SUZUKI HITOSHI ET AL) 26 October 1993 see abstract see column 3, line 1 - column 4, line 47; figures 4-6	1-8

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 May 1999	12/05/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Suendermann, R

1

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 101 349 A (TOKUUME YOSHIHIRO ET AL) 31 March 1992 see abstract see column 2, line 10 - column 25 ---	1-8
A	FR 2 659 461 A (KIS FRANCE SA ;CRASNIANSKI SERGE (FR)) 13 September 1991 see abstract ---	9-13
A	US 5 063 508 A (YAMADA YOSHIMI ET AL) 5 November 1991 see abstract see column 2, line 10 - line 25 -----	9-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IT 99/00040

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5349368 A	20-09-1994	JP 63106866 A	11-05-1988
		DE 3751784 D	30-05-1996
		DE 3751784 T	05-09-1996
		EP 0265280 A	27-04-1988
EP 0176858 A	09-04-1986	JP 61074069 A	16-04-1986
		JP 1666728 C	29-05-1992
		JP 3032105 B	09-05-1991
		JP 61080358 A	23-04-1986
		JP 1666729 C	29-05-1992
		JP 3032106 B	09-05-1991
		JP 61080362 A	23-04-1986
		JP 61088367 A	06-05-1986
		JP 61088368 A	06-05-1986
		JP 61090268 A	08-05-1986
		JP 61090269 A	08-05-1986
		DE 3587009 A	04-03-1993
		US 5220503 A	15-06-1993
US 5257187 A	26-10-1993	JP 5008466 B	02-02-1993
		JP 63137365 A	09-06-1988
		GB 2199431 A	06-07-1988
US 5101349 A	31-03-1992	JP 2240769 A	25-09-1990
		DE 69031354 D	09-10-1997
		DE 69031354 T	08-01-1998
		EP 0388156 A	19-09-1990
FR 2659461 A	13-09-1991	NONE	
US 5063508 A	05-11-1991	JP 2249064 A	04-10-1990

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
AGOSTINI,G.
D' AGOSTINI Organizzazione
Via G. Giusti 17
33100 UDINE
ITALIE

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of mailing *(day/month/year)*	26.11.99
Applicant's or agent's file reference: dagoPCT-1	REPLY DUE: **within 3 month(s)** from the above date of mailing

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IT99/00040	19/02/1999	03/03/1998

International Patent Classification (IPC) or both national classification and IPC
G06F17/28

Applicant
D'AGOSTINI ORGANIZZAZIONE S.R.L. et al.

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

I	☒	Basis of the opinion
II	☐	Priority
III	☐	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	☐	Certain document cited
VII	☐	Certain defects in the international application
VIII	☒	Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 03/07/2000.

Name and mailing address of the international preliminary examining authority:
European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer / Examiner
Barraco, G

Formalities officer (incl. extension of time limits)
Kirby, K
Telephone No. +49 89 2399 2687

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

2.1. The application claims an invention using terms of high level of abstraction in the domain of computation linguistics.

The terms used neither have a generally recognized meaning in the field concerned nor their meaning can be derived without doubt from the application as a whole.

Not sufficient care has been had in precising the definition of linguistic terms, which have been adopted in different ways in computation linguistics and which can give rise to doubtful and not deterministic (possibly not technical) meanings when not properly circumstantiated for the particular computational processing technique to be adopted.

In particular, the following expressions in the claims 1 appear of not clear meaning: " opt from.. to... " (line 14, page 26, claim 1), "eventual change of the operator" (line 27, page 26, claim 1) , " memorize a respective behaviour code" (line 2, page 27 of claim 1), " integrate... storage means.. of words" (line 4, page 27, claim 1).

The following analysis has been made for the processing to which the " input text to be translated" of claim 1 undergoes, this is a probable but not sure interpretation of the wording:
the text is, in a first stage of the translation process, **automatically** (i.e. by the computer system) compared with a stored dictionary of words and phrases and than, in a second stage, **interactively** (i.e. with the intervention of the operator) is presented to the user, who is put in condition to enter further information which is useful for the translation process.

Such way of conducting the machine translation process is known in the art and is, in effect, treated in D1, which give also details on the ways of displaying in correspondence the texts with the translations and with the user-entered information, cf. D1: Abstract, claims 1 to 5 passage from line 1 of page 16 to line 6 of page 29 together with figures 6 to 22.

Therefore, the subject-matter of claim 1 and 18 , when interpreted in the above way, is even not new.

2.2. Also the subclaims, contain expressions of not clear meaning. Their subject-matter, when interpreted in the above way, do not seem to be able to convey inventive significance, since the features there defined are considered obvious operational features of the machine translation systems known in the art ,as the one known from D1.

Re Item VIII

Certain observations on the international application

1. The documents D1 should have been identified in the description and the relevant background art disclosed should have been briefly discussed, in accordance with the requirements of Rule 5.1(A)(ii) PCT.

2. Reference signs in parentheses should have been inserted in the claims to increase their intelligibility, Rule 6.2(B) PCT. This applies to both the preamble and characterising portion.

3. In order to expedite further examination you are requested to indicate with your reply the location/s/ in the application as originally filed of the passage/s/ forming a basis for the amendments and to furnish a complete list of the application pages to be examined.

The examination is being carried out on the **following application documents:**

Text for the Contracting States:
AT BE CH DE DK ES FI FR GB GR IT IE LI LU MC NL PT SE

Description, pages:

1-25 as originally filed

Claims, No.:

1-12 as originally filed

Drawings, sheets:

1/7-7/7 as originally filed

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: EP-A-0 176 858 (SHARP KK) 9 April 1986

2. The wording of claims appear not clear and also the dependencies of claims appear not clear.

I. Basis of the opinion

1. This opinion has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".*):

Description, pages:

1-25 as originally filed

Claims, No.:

1-12 as originally filed

Drawings, sheets:

1/7-7/7 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 no
Inventive step (IS)	Claims	2-25 no
Industrial applicability (IA)	Claims	

2. Citations and explanations

see separate sheet

INTERNATIONAL SEARCH REPORT

Intern ial Application No
PCT/IT 99/00040

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 349 368 A (TAKEDA KIMIHITO ET AL) 20 September 1994 see abstract; claims 1-8 see column 2, line 15 - line 26 see column 7, line 11 - column 9, line 49; figures 7-12	1-8
A	EP 0 176 858 A (SHARP KK) 9 April 1986 see abstract; claims 1-5 see page 16, line 1 - page 29, line 6; figures 6-22	1-8
A	US 5 257 187 A (SUZUKI HITOSHI ET AL) 26 October 1993 see abstract see column 3, line 1 - column 4, line 47; figures 4-6	1-8

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 May 1999	12/05/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Suendermann, R

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Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Intern ial Application No
PCT/IT 99/00040

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 101 349 A (TOKUUME YOSHIHIRO ET AL) 31 March 1992 see abstract see column 2, line 10 - column 25	1-8
A	FR 2 659 461 A (KIS FRANCE SA ;CRASNIANSKI SERGE (FR)) 13 September 1991 see abstract	9-13
A	US 5 063 508 A (YAMADA YOSHIMI ET AL) 5 November 1991 see abstract see column 2, line 10 - line 25	9-13

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

...formation on patent family members

...nal Application No
PCT/IT 99/00040

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5349368 A	20-09-1994	JP 63106866 A	11-05-1988
		DE 3751784 D	30-05-1996
		DE 3751784 T	05-09-1996
		EP 0265280 A	27-04-1988
EP 0176858 A	09-04-1986	JP 61074069 A	16-04-1986
		JP 1666728 C	29-05-1992
		JP 3032105 B	09-05-1991
		JP 61080358 A	23-04-1986
		JP 1666729 C	29-05-1992
		JP 3032106 B	09-05-1991
		JP 61080362 A	23-04-1986
		JP 61088367 A	06-05-1986
		JP 61088368 A	06-05-1986
		JP 61090268 A	08-05-1986
		JP 61090269 A	08-05-1986
		DE 3587009 A	04-03-1993
		US 5220503 A	15-06-1993
US 5257187 A	26-10-1993	JP 5008466 B	02-02-1993
		JP 63137365 A	09-06-1988
		GB 2199431 A	06-07-1988
US 5101349 A	31-03-1992	JP 2240769 A	25-09-1990
		DE 69031354 D	09-10-1997
		DE 69031354 T	08-01-1998
		EP 0388156 A	19-09-1990
FR 2659461 A	13-09-1991	NONE	
US 5063508 A	05-11-1991	JP 2249064 A	04-10-1990

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
dagoPCT-1		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IT99/00040	19/02/1999	03/03/1998
International Patent Classification (IPC) or national classification and IPC G06F17/28		
Applicant D'AGOSTINI ORGANIZZAZIONE S.R.L. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
14/07/1999	09.03.2000
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Barraco, G Telephone No. +49 89 2399 2172

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IT99/00040

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-11,15-25	as originally filed			
12-14	as received on	07/12/1999	with letter of	03/12/1999

Claims, No.:

4 (part),5-13	as originally filed			
1-3,4 (part)	as received on	07/12/1999	with letter of	03/12/1999

Drawings, sheets:

1/7-7/7	as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-13
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-13
Industrial applicability (IA)	Yes:	Claims	1-13
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The following document (D) is referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: EP-A-0 176 858 (SHARP KK) 9 April 1986

2. The wording of claims appear not clear and also the dependencies of claims appear not clear, cf. claim11.

2.1. The application claims an invention using terms of high level of abstraction in the domain of computation linguistics.

The terms used neither have a generally recognized meaning in the field concerned nor their meaning can be derived without doubt from the application as a whole.

Not sufficient care has been had in precising the definition of linguistic terms, which have been adopted in different ways in computation linguistics and which can give rise to doubtful and not deterministic (possibly not technical) meanings when not properly circumstantiated for the particular computational processing technique to be adopted.

In particular, the following expressions in the claims 1 appear of not clear meaning :
" opt from.. to... " (line 14, page 26, claim 1),
" memorize a respective behaviour code" (line 2, page 27, claim 1).

The following analysis has been made for the processing to which the " input text to be translated" of claim 1 undergoes, this is a probable but not sure interpretation of the wording:
the text is, in a first stage of the translation process, **automatically** (i.e. by the computer system) compared with a stored dictionary of words and phrases and than, in a second stage, **interactively** (i.e. with human interventions) is presented to the user, who is put in condition to enter further information which is useful for the translation process of the **entire** source text.

Such technique of conducting the machine translation process is known in the art and is, in effect, treated in D1, which gives also details on the ways of displaying in correspondence the texts with the translations and with the user-entered information, cf. D1: Abstract, claims 1 to 5 and passage from line 1 of page 16 to line 6 of page 29 together with figures 6 to 22.

Therefore, the subject-matter of a clarified independent claim implementing said known technique and equivalent to claim 1 , when interpreted in the above way, is not inventive and does not satisfy the condition set forth in Article 33(3) PCT.

2.2. Also the subclaims 2 to 13, contain expressions of not clear meaning.

However, their subject-matter, when interpreted in the light of the above explanation for claim 1, do not seem to be able to convey inventive significance, since the features there defined are considered obvious operational features of the machine translation systems known in the art ,as the one known from D1.

means for displaying the source language document on the translation screen portion;

means for comparing each of the plurality of source terms from the product glossary with the source terms in the source language document;

inserting means for inserting a character adjacent to the source term in the source language document, in response to each comparison by the comparing means which produces a match between one of the source terms in the source language document and one of the source terms in the product glossary;

means for associating in an index file the inserted character with a target term from the product glossary that translates the matched source term from the source language into the target language;

means for inputting an insert target term command which contains a translation request character corresponding to the inserted character;

means for retrieving the translation request character from the insert target term command;

means for retrieving from the index file the target term associated with the retrieved translation request character; and

means for inserting the retrieved target term on the translation screen portion in response to the insert target term command.

EP-A-0176858(SHARP KK) April 1986, discloses:
A translation system performing translation from a first language into second language under an interaction mode between said translation system and an operator, comprising means for inputing original sentence to be translated, means for translating the input sentence of said first language into output sentence of said second language, wherein the operator inputs information relating to at least one word of the input sentence then the translation is performed on the basis of said input information.

Prior art drawbacks

The prior art drawbacks substantially consist in that they do not allow the operator to reach a suitable operational performance, **even in the latter EP-A-0176858(SHARP KK) solution, the operator identifies first the qualification of input sentence word/s, then translation is performed.**

Purpose of the present invention

Purpose of the present invention is that of obviating the above mentioned drawbacks.

Essence of the invention

The problem is solved as claimed by a machine translation system and respective translator which comprises such system, of the type in which the set-up of:

- first means for the storing of words and strings with more words with respective correct translations forming a dictionary of words and sentences or sentence portions;
- second means for receiving a text to be translated on a screen field and
- third means for storing the translated text into a second screen field;
- fourth means for progressively searching the words of the text to be translated and comparing them with said first means words for obtaining a progressive translation; and
- means for having an option between a completely automatic form of translation or an interactive one or vice versa before beginning the translation, in which, during said interactive translation option, are additionally provided:
- means for displaying on a disappearing window on said screen:
- the words missing during the word search and
- the sentences translated when each sentence translation is complete; and allow their correction and storage;

characterized in that, ~~during~~ **in** said interactive translation option **the following** are additionally provided:

• means for highlighting and storing a translated sentence word or portion, concerning a ~~possible~~ modification by the operator and

- means for highlighting and storing the corresponding ~~translated~~ sentence, word or portion **to be translated**,
- means for storing a respective behaviour code of **the modification of** said sentence, word or portion;
- for integrating said first storage means **with them** forming a dictionary of words and sentences or sentence portions **for self-modification in the next sentences to be translated.**

Advantages of the new solution

In this way there is the advantage of giving the operator the possibility of progressively implementing during the same translation not only the missing words or the repetitive and common sentences as in the prior art known systems, but also sentence fragments, which thanks to the respective behaviour code given by the operator will be inserted and suitably be self-modified in the next translation sentence.

Thus, thanks to the well known repetitiveness of the expressions in the translation documents, the system automatically and rapidly ~~suits~~ **continues** to ~~the~~ **this** new translation ~~field~~ **domain** giving, after the first translated text ~~pieces~~ **modifications, thanks to said auto-learning of corrections (FM1-FM2, FM3) with said behaviour code (FM4)** , a resulting maximum translation level and absolutely peerless in quality respect to any known translation system.

The tests carried out gave such amazing results that even after only a little translation the errors in each sentence decrease to the minimum almost immediately reaching the average error/sentence value comprised between 1 and 2, for then reaching the error/sentences value >1.

Preferential variations

The presence of ~~of~~ the following is additionally provided :

AA. Means which provide at least three control and input lines: .

Claims

1. A Machine translation system using a computer translator of the type in which is provided the prearrangement of:
- first storage means of words and strings of more words with respective correct translations forming a dictionary of words and sentences or sentence portions;
- second means to receive and store a text to be translated in a screen field or second storing means (4-45-455) and
- third means to store the translated text in a second screen field or third storing means (456);
- fourth means to find in progression the words of the text to be translated and compare them with the words of said first means to obtain a progressive translation and:
- means to opt from a completely automatic kind of translation to an interactive translation or vice versa, before beginning the translation, in which :
during said interactive translation option, the following are further provided:
- means to display in a display window (46) on said screen (4):
- the words lacking during the research of the words and
- the translated sentences at the completion of the translation of each sentence; and allow their correction and storage;
characterised in that, ~~during~~ **in** said interactive translation option, the following are further provided:
- means to highlight (F2) and store a translated word or sentence portion (4631), concerning ~~an eventual change~~ **modification by** the operator and
- means to highlight and store the corresponding word or sentence

portion (F4-4621) of the sentence to be translated (462), and

- means to memorize a respective behaviour code (F5-4632) **of the modification** of said translated word or sentence portion (4631);

to integrate said first storage means **with them (4621,4631,4632)**, forming a dictionary of words and sentences or sentence portions (FM; FM1,FM2,FM3,FM4,FM5) **for self-modification in the next sentences to be translated**.

2. Translation system according to claim 1. characterised in that in said interactive window (46) at least three sentences lines/fragments or control and input strings are provided:

- the first as a fragment (4621) of the sentence to be translated (462) corresponding to the correction made (4631);
- the second as a portion concerning the correction of the translated sentence (4631);
- the third as behaviour code (4632) corresponding to the portion concerning the correction (4631).

3. Translation system according to any of the preceding claims where in said interactive window (46), a line representing a series of numbers (461) is further provided, in which the number are represented in logic succession, with:

- traits of single words translation (1*n) +
- traits of words sets translation (n)+.

4. Translation system according to any of the preceding claims, characterised in that it includes a translation interface (45) that includes at least two fields (455-456) vertically scrollable in parallel (4511-4561); adjacent and placed side-by-side, one for the document to be translated (455) and one for the translation (456), being provided means that:

- allow the contemporary variation of both fields dimension, one for the text to be translated and one for the translated text, and

means for displaying the source language document on the translation screen portion;

means for comparing each of the plurality of source terms from the product glossary with the source terms in the source language document;

inserting means for inserting a character adjacent to the source term in the source language document, in response to each comparison by the comparing means which produces a match between one of the source terms in the source language document and one of the source terms in the product glossary;

means for associating in an index file the inserted character with a target term from the product glossary that translates the matched source term from the source language into the target language;

means for inputting an insert target term command which contains a translation request character corresponding to the inserted character;

means for retrieving the translation request character from the insert target term command;

means for retrieving from the index file the target term associated with the retrieved translation request character; and

means for inserting the retrieved target term on the translation screen portion in response to the insert target term command.

Prior art drawbacks

The prior art drawbacks substantially consist in that they do not allow the operator to reach a suitable operational performance.

Purpose of the present invention

Purpose of the present invention is that of obviating the above mentioned drawbacks.

Essence of the invention

The problem is solved as claimed by a machine translation system and respective translator which comprises such system, of the type in which the set-up of:

- first means for the storing of words and strings with more words with respective correct translations forming a dictionary of words and sentences or sentence portions;
- second means for receiving a text to be translated on a screen field and
- third means for storing the translated text into a second screen field;
- fourth means for progressively searching the words of the text to be translated and comparing them with said first means words for obtaining a progressive translation; and
- means for having an option between a completely automatic form of translation or an interactive one or vice versa before beginning the translation, in which, during said interactive translation option, are additionally provided:
- means for displaying on a disappearing window on said screen:
- the words missing during the word search and
- the sentences translated when each sentence translation is complete; and allow their correction and storage;

characterized in that, during said interactive translation option are additionally provided:

• means for highlighting and storing a translated sentence word or portion, concerning a possible modification by the operator and

- means for highlighting and storing the corresponding translated sentence word or portion,
- means for storing a respective behaviour code of said sentence word or portion;
- for integrating said first storage means forming a dictionary of words and sentences or sentence portions.

Advantages of the new solution

In this way there is the advantage of giving the operator the possibility of progressively implementing during the same translation not only the missing words or the repetitive and common sentences as in the prior art known systems, but also sentence fragments, which thanks to the respective behaviour code given by the operator will be inserted and suitably be self-modified in the next translation sentence.

Thus, thanks to the well known repetitiveness of the expressions in the translation documents, the system automatically and rapidly suits to the new translation field giving, after the first translated text pieces, a resulting maximum translation level and absolutely peerless in quality respect to any known translation system.

The tests carried out gave such amazing results that even after only a little translation the errors in each sentence decrease to the minimum almost immediately reaching the average error/sentence value comprised between 1 and 2, for then reaching the error/sentences value >1.

Preferential variations

The presence of of the following is additionally provided :

AA. Means which provide at least three control and input lines:

Claims

1. A Machine translation system using a omputer translator of the type in which is provided the prearrangement of:

- first storage means of words and strings of more words with respective correct translations forming a dictionary of words and sentences or sentence portions;
- second means to receive and store a text to be translated in a screen field or second storing means (4-45-455) and
- third means to store the translated text in a second screen field or third storing means (456);
- fourth means to find in progression the words of the text to be translated and compare them with the words of said first means to obtain a progressive translation and:
- means to opt from a completely automatic kind of translation to an interactive translation or vice versa, before beginning the translation,

in which :

during said interactive translation option, the following are further provided:

- means to display in a display window (46) on said screen (4):
- the words lacking during the research of the words and
- the translated sentences at the completion of the translation of each sentence; and allow their correction and storage;

characterised in that, during said interactive translation option, the following are further provided:

- means to highlight (F2) and store a translated word or sentence portion (4631), concerning an eventual change of the operator and
- means to highlight and store the corresponding word or sentence

portion (F4-4621) of the sentence to be translated (462), and

- means to memorize a respective behaviour code (F5-4632) of said translated word or sentence portion (4631);

to integrate said first storage means forming a dictionary of words and sentences or sentence portions (FM; FM1,FM2,FM3,FM4,FM5).

2. Translation system according to claim 1. characterised in that in said interactive window (46) at least three sentences lines/fragments or control and input strings are provided:

- the first as a fragment (4621) of the sentence to be translated (462) corresponding to the correction made (4631);

- the second as a portion concerning the correction of the translated sentence (4631);

- the third as behaviour code (4632) corresponding to the portion concerning the correction (4631).

3. Translation system according to any of the preceding claims where in said interactive window (46), a line representing a series of numbers (461) is further provided, in which the number are represented in logic succession, with:

- traits of single words translation (1*n) +

- traits of words sets translation (n)+.

4. Translation system according to any of the preceding claims, characterised in that it includes a translation interface (45) that includes at least two fields (455-456) vertically scrollable in parallel (4511-4561); adjacent and placed side-by-side, one for the document to be translated (455) and one for the translation (456), being provided means that:

- allow the contemporary variation of both fields dimension, one for the text to be translated and one for the translated text, and

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference *(if desired) (12 characters maximum)* dagoPCT-1

Box No. I TITLE OF INVENTION

A TRANSLATION SYSTEM AND A MULTIFUNCTION COMPUTER, PARTICULARLY FOR TREATING TEXTS AND TRANSLATION ON PAPER

Box No. II APPLICANT

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

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Italy

☐ This person is also inventor.

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Facsimile No.

Teleprinter No.

State *(that is, country)* of nationality: ITALY

State *(that is, country)* of residence: ITALY

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

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This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: Italy

State *(that is, country)* of residence: Italy

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

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INTERNATIONAL SEARCH REPORT

Intern ial Application No
PCT/IT 99/00040

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 349 368 A (TAKEDA KIMIHITO ET AL) 20 September 1994 see abstract; claims 1-8 see column 2, line 15 - line 26 see column 7, line 11 - column 9, line 49; figures 7-12	1-8
A	EP 0 176 858 A (SHARP KK) 9 April 1986 see abstract; claims 1-5 see page 16, line 1 - page 29, line 6; figures 6-22	1-8
A	US 5 257 187 A (SUZUKI HITOSHI ET AL) 26 October 1993 see abstract see column 3, line 1 - column 4, line 47; figures 4-6	1-8

-/--

[X] Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search	Date of mailing of the international search report
3 May 1999	12/05/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Suendermann, R

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PCT/IT 99/00040

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 101 349 A (TOKUUME YOSHIHIRO ET AL) 31 March 1992 see abstract see column 2, line 10 - column 25 ---	1-8
A	FR 2 659 461 A (KIS FRANCE SA ;CRASNIANSKI SERGE (FR)) 13 September 1991 see abstract ---	9-13
A	US 5 063 508 A (YAMADA YOSHIMI ET AL) 5 November 1991 see abstract see column 2, line 10 - line 25 -----	9-13

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Interr nal Application No
PCT/IT 99/00040

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5349368 A	20-09-1994	JP 63106866 A	11-05-1988
		DE 3751784 D	30-05-1996
		DE 3751784 T	05-09-1996
		EP 0265280 A	27-04-1988
EP 0176858 A	09-04-1986	JP 61074069 A	16-04-1986
		JP 1666728 C	29-05-1992
		JP 3032105 B	09-05-1991
		JP 61080358 A	23-04-1986
		JP 1666729 C	29-05-1992
		JP 3032106 B	09-05-1991
		JP 61080362 A	23-04-1986
		JP 61088367 A	06-05-1986
		JP 61088368 A	06-05-1986
		JP 61090268 A	08-05-1986
		JP 61090269 A	08-05-1986
		DE 3587009 A	04-03-1993
		US 5220503 A	15-06-1993
US 5257187 A	26-10-1993	JP 5008466 B	02-02-1993
		JP 63137365 A	09-06-1988
		GB 2199431 A	06-07-1988
US 5101349 A	31-03-1992	JP 2240769 A	25-09-1990
		DE 69031354 D	09-10-1997
		DE 69031354 T	08-01-1998
		EP 0388156 A	19-09-1990
FR 2659461 A	13-09-1991	NONE	
US 5063508 A	05-11-1991	JP 2249064 A	04-10-1990

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UD98A000032 3 March 1998 (03.03.98) IT

(71) Applicant *(for all designated States except US)*: D'AGOSTINI ORGANIZZAZIONE S.R.L. [IT/IT]; Via G. Giusti, 17, I–33100 Udine (IT).

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(74) Agent: D'AGOSTINI, Giovanni; D'Agostini Organizzazione s.r.l., Via G. Giusti, 17, I–33100 Udine (IT).

(81) Designated States: AU, BR, CA, CN, CU, JP, MX, RU, US, VN, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
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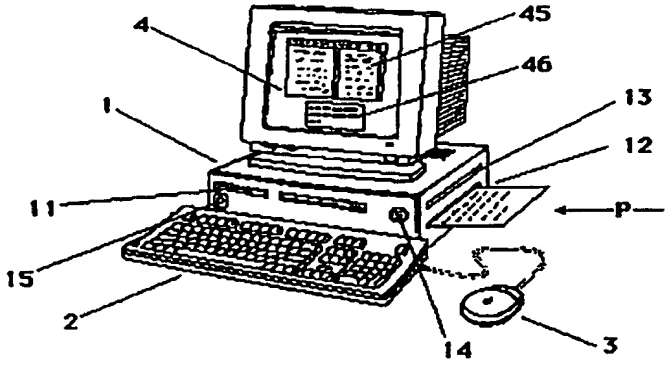
(54) Title: A TRANSLATION SYSTEM AND A MULTIFUNCTION COMPUTER, PARTICULARLY FOR TREATING TEXTS AND TRANSLATION ON PAPER



(57) Abstract

Computer for text treatment and machine translation system and translator, of the type in which the prearrangement is provided: first means for storing words and strings of more words with respective correct translations forming a dictionary of words and sentences or sentence portions; second means for receiving a text to be translated in a screen field (4–45–455); and third means for storing the translated text in a second screen field (456); fourth means for searching in progression the words of the text to be translated and compare them with the words of said first means to obtain a progressive translation and: means to opt from a completely automatic translation form to an interactive translation or vice versa, before beginning the translation, in which, during said option of interactive translation, are further provided: means to display in a disappearing window (46) on said screen (4); the words lacking during the research of the words and the translated sentences at the completion of the translation of each sentence; and allow the correction and storage; the translation apparatus involving a scanner integrated in it with OCR for the side direct loading of the sheets to be translated (P–12–13).

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GN	Guinea
GR	Greece
HU	Hungary
IE	Ireland
IL	Israel
IS	Iceland
IT	Italy
JP	Japan
KE	Kenya
KG	Kyrgyzstan
KP	Democratic People's Republic of Korea
KR	Republic of Korea
KZ	Kazakstan
LC	Saint Lucia
LI	Liechtenstein
LK	Sri Lanka
LR	Liberia
LS	Lesotho
LT	Lithuania
LU	Luxembourg
LV	Latvia
MC	Monaco
MD	Republic of Moldova
MG	Madagascar
MK	The former Yugoslav Republic of Macedonia
ML	Mali
MN	Mongolia
MR	Mauritania
MW	Malawi
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NL	Netherlands
NO	Norway
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SZ	Swaziland
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TJ	Tajikistan
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TR	Turkey
TT	Trinidad and Tobago
UA	Ukraine
UG	Uganda
US	United States of America
UZ	Uzbekistan
VN	Viet Nam
YU	Yugoslavia
ZW	Zimbabwe

DESCRIPTION

A TRANSLATION SYSTEM AND A MULTIFUNCTION COMPUTER, PARTICULARLY FOR TREATING TEXTS AND TRANSLATION ON PAPER

Technical Field

This invention has for object a translation system and a multifunction computer, particularly for treating texts and translation on paper.

The translation system is also part of this invention.

Background Art

In prior art there is a great plurality of computers able to do translations and machine translation systems.

The most known ones are the following :

US-5677835 - Oct. 14, 1997 - in the name of Caterpillar Inc., Peoria, IL, USA

This substantially regards:

a system of integrated computer-based processes for monolingual information development and multilingual translation.

An interactive text editor enforces lexical and grammatical constraints on a natural language subset used by the authors to create their text, which they help disambiguate to ensure translatability.

The resulting translatable source language text undergoes machine translation into any one of a set of target languages, without the translated text requiring any post-editing.

US-5510981; Oct. 28, 1993; (International Business Machines Corporation, Armonk, NY), regards a language translation apparatus and method using

context-based translation models:

In particular:

An apparatus for translating a series of source words in a first language to a series of target words in a second language. For an input series of source words, at least two target hypotheses, each including a series of target words, are generated.

Each target word has a context comprising at least one other word in the target hypothesis.

For each target hypothesis, a language model match score including an estimate of the probability of occurrence of the series of words in the target hypothesis.

At least one alignment connecting each source word with at least one target word in the target hypothesis is identified. For each source word and each target hypothesis, a word match score including an estimate of the conditional probability of occurrence of the source word, given the target word in the target hypothesis which is connected to the source word and given the context in the target hypothesis of the target word which is connected to the source word.

For each target hypothesis, a translation match score including a combination of the word match scores for the target hypothesis and the source words in the input series of source words.

A target hypothesis match score including a combination of the language model match score for the target hypothesis and the translation match score for the target hypothesis. The target hypothesis having the best target hypothesis match score is output.

US-5384701 - June 7 , 1991 in the name of British Telecommunications public limited company, London, England ,

regards a Language translation system,and in particular:

A language translation system for translating phrases from a first language into a second language comprises a store holding a collection of phrases in the second language.

Phrases input in the first language are each characterized on the basis of one or more keywords, and the corresponding phrase in the second language is output. Such a phrasebook approach enables what is effectively a rapid and accurate translation, even from speech.

Since the phrases in the second language are prepared in advance and held in store, there need be no problems of poor translation or ungrammatical construction.

The output may be in text, or, using speech synthesis, in voice form. With appropriate choice of keywords it is possible to characterize a large number of relatively long and complex phrases with just a few keywords.

US-5338976 - June 16, 1992, in the name of Ricoh Company, Ltd., Tokyo, Japan, regards an Interactive language conversion system; and in particular:

a language conversion system includes a database of expression patterns in the object language, a relevance evaluation mechanism for evaluating a relevance of each expression patterns in the object language with respect to an input in the original language, a retrieval and identification mechanism for retrieving and identifying from the input in the original language information requested by the expression pattern in the object language required to generate an output in the object language, a selection mechanism for selecting the expression pattern in the object

language conforming to the input in the original language depending on the relevance evaluated in the relevance evaluation mechanism, an output mechanism for generating the output in the object language based on the required information retrieved and identified from the input in the original language by the retrieval and identification mechanism, and a control mechanism for controlling operation sequences of the relevance evaluation mechanism, the retrieval and identification mechanism, the selection mechanism and the output mechanism.

US-5659765 : Machine translation system in the name of Toppan Printing Co., Ltd., Tokyo, Japan, filed on March 14, 1995, claims :

A machine translation system comprising:

- a first language;
- second input means for inputting a second character string written in a second language;
- display means for simultaneously displaying the first and second character strings input from said first and second input means;
- linking means which has first designating means for designating a third character string included in the first character
- string displayed by said display means, and second designating means for designating a fourth character string included in the second character string displayed by said display means, and links the third and fourth character strings with each other;
- recording means for recording the third and fourth character strings linked by said linking means as a pair; and
- means for detecting the character string which is most similar to

an original character string written in the first language from a plurality of recorded third character strings, and translating the original character string into a character string written in the second language by using a fourth character string linked with the detected character string.

US-5426583 - Jan. 27, 1994 - in the name of Uribe-Echebarria Diaz De Mendibil; Gregorio, Erandio, Bilbao, Spain, regards an Automatic interlingual translation system, claiming :

- a method for use in a computer to automatically translate a first text based on a source language to a second text based on a different target language, said method comprising the steps of:

(a) analyzing said first text to achieve an arborescent-type clarification on morphological, syntactical and semantic characteristics of said first text;

(b) translating the analyzed text to a first intermediate language, wherein said first intermediate language contains structural characteristics of said source language;

(c) integrating the translated text into an interlingua,

wherein said interlingua contains morphological, syntactical, and semantic features of a plurality of languages;

(d) translating the integrated text to a second intermediate language, wherein said second intermediate language contains structural characteristics of said target language; and

(e) converting the translated, integrated text to said second text.

US-4604698 - Dec. 22, 1983 - in the name of Sharp Kabushiki Kaisha, Osaka, Japan, regards an Electronic translator including character input keys for inputting a first language word, a

translator for translating the inputted first language word into the second language word, a retranslator for retranslating the second language word back to the first language word, and a display unit for displaying the inputted word, translated word and retranslated word.

US-4439836 Oct.- 22, 1980 - in the name of Sharp Kabushiki Kaisha, Osaka, Japan, regards an Electronic translator, claiming:

an electronic translator device for obtaining a second word represented in a second language equivalent to an input word in a first language, comprising:

input means for entering the input word;

first memory means for memorizing a plurality of first words in the first language, each of said first words

comprising one or more first letters which remain unchanged regardless of inflection and one or more second letters which change according to inflection;

address means operatively connected to said input means and responsive to entry of the input word for addressing

said first memory means to develop one of the plurality of first words;

detection means operatively connected to said first memory means and responsive to said address means for

detecting eqivalency between the input word and said first letters of respective first words;

second memory means for memorizing a plurality of second words in the second language corresponding to first

words stored in said first memory means;

first means operatively connected to said detecting means

for activating said second memory means whereby said second memory means develops a second word corresponding to the input word when the input word is equivalent to one of said first words; and

second means operatively connected to said detecting means for indicating that one of said first words in said first memory means comprises a noninflected form of the input word.

US-4633435 - July 22, 1985 - in the name of Sharp Kabushiki Kaisha, Osaka, Japan, regards an Electronic language translator capable of modifying definite articles, and in particular regarding an electronic translator is featured in which sentences as stored are modified by replacing one or more words in one of the original sentences with one or more new words and by changing automatically one or more additional words in the original sentence, depending on the nature of the one or more new words entered in the sentence. For example, the one or more additional words may be definite articles or prepositions.

US-4831529 - Feb. 12, 1987 - in the name of Kabushiki Kaisha Toshiba, Kawasaki, Japan, regards a Machine translation system, claiming:

a machine translation system for translating a first language into a second language, which comprises:

input means for entry of an original written sentence in the first language into the system;

dictionary means having at least a first dictionary for storing various words in various parts of speech and their translation in the second language respectively corresponding to the words in the first language, and a second

dictionary for storing various words designated as nouns corresponding to words in the first language;

translation means for analyzing the original written sentence in the first language, for retrieving said dictionary means and for executing the translation processing of the input original, when any same word designated as nouns stored in the first dictionary is found in the second dictionary, the word stored in the second dictionary takes precedence over that in the first dictionary in the translation means; and

output means for producing translated sentences in the second language obtained from said translation means.

US-5020021 - Jan. 10, 1986 - in the name of Hitachi, Ltd., Tokyo, Japan, regards a system for automatic language translation using several dictionary storage areas and a noun table, and in particular regarding a translation method for a machine translation system provided with apparatus for parsing a source language sentence and for forming a target language translation in which a phrase omitted in the source language setence is identified, and a word or phrase to be inserted for the omitted phrase is selected from stored words and phrases. For identifying an omitted phrase, a sentence pattern corresponding to a predicate in the source language sentence is formed so as to include not only cases governed by the predicate but also a semantic feature for each case. By comparing the source language sentence with the sentence pattern, a case which is omitted in the source language sentence but cannot be omitted in the target language translation is identified. For determining a word or phrase to be placed at the position of the omitted phrase, the nouns having appeared in the

source language text is stored in a noun, together with the semantic feature, gender, person and number of each noun is searched for a noun having the same semantic feature as the omitted phrase. When a target language translation of the source language sentence is formed, a pronoun having the same gender, person and number as the omitted phrase is used as a target language equivalent for the omitted phrase, and thus a target language translation which is grammatically correct, is obtained.

US-5093788 - June 25, 1987 - in the name of Sharp Kabushiki Kaisha, Osaka, Japan, regards a Translation machine system with splitting and combining of sentences.

Same claims an electronic translation machine system for translating multiple sentences from a source language to a target language comprising:

input means for inputting a plurality of source sentences;

first buffer means in communication with said input means for storing said source sentences;

position designation means coupled with said first buffer means for designating a division point separating a selected source sentence into parts and for inserting a position designation symbol in said selected source sentence;

splitting means in communication with said first buffer means for scanning said selected source sentence for said position designation symbol and, once encountered, for splitting said selected source sentence into parts and for storing said parts in said first buffer means; and translation means for translating the parts of said selected source sentence stored in said buffer means from said source language to said target

language.

US-5175684 - Dec. 31, 1990 - in the name of Trans-Link International Corp., Honolulu, HI, regards an Automatic text translation and routing system, claiming:

- a machine translation system comprising:

a machine translation module which is capable of performing machine translation from input text of a source language to output text of a target language, said machine translation module having a plurality of target language submodules for performing machine translation into a plurality of different target languages;

a receiving interface for receiving via a first telecommunications link an electronic input which is divided into pages,

said input pages including a cover page having predefined fields containing system information therein and at least one text page in a source language, wherein said cover page includes at least a first predefined field designating an address of an addressee to which translated output text is to be sent, and a second predefined field designating a selected one of the plurality of different target languages into which the at least one text page is to be translated, and

wherein said receiving interface includes a recognition module capable of electronically recognizing the address of the addressee designated in said first predefined field of the cover page of the received input pages, and the selected target language designated in said second predefined field of the cover page;

a sending interface for sending output text generated by said

machine translation module to an addressee via a second telecommunications link; and

control means coupled to said receiving interface, said machine translation module, and said sending interface for recognizing the address and target language designated in said predefined fields of said cover page, for controlling said machine translation module to generate output text of the designated target language from the input text of the source language, and for operating said sending interface to automatically send the translated output text via the second telecommunications link to the designated address recognized from said predefined fields of said cover page.

US-5303151 - Feb. 26, 1993 - in the name of Microsoft Corporation, Redmond, WA, regards a Method and system for translating documents using translation, and claiming:

- a computer system for translating a source language document written in a source language to a target language document written in a target language, the source language including a multiplicity of source terms and the target language including a multiplicity of target terms, the computer system including a display screen, the source language document, a product glossary having a plurality of source terms from the source language and a plurality of target terms from the target language, each source term being associated with the corresponding target term which translates the source term into the target language, the computer system comprising:

means for producing a translation screen portion on the display screen, the translation screen portion including a current insertion point;

means for displaying the source language document on the translation screen portion;

means for comparing each of the plurality of source terms from the product glossary with the source terms in the source language document;

inserting means for inserting a character adjacent to the source term in the source language document, in response to each comparison by the comparing means which produces a match between one of the source terms in the source language document and one of the source terms in the product glossary;

means for associating in an index file the inserted character with a target term from the product glossary that translates the matched source term from the source language into the target language;

means for inputting an insert target term command which contains a translation request character corresponding to the inserted character;

means for retrieving the translation request character from the insert target term command;

means for retrieving from the index file the target term associated with the retrieved translation request character; and

means for inserting the retrieved target term on the translation screen portion in response to the insert target term command.

Prior art drawbacks

The prior art drawbacks substantially consist in that they do not allow the operator to reach a suitable operational performance.

Purpose of the present invention

Purpose of the present invention is that of obviating the above mentioned drawbacks.

Essence of the invention

The problem is solved as claimed by a machine translation system and respective translator which comprises such system, of the type in which the set-up of:

- first means for the storing of words and strings with more words with respective correct translations forming a dictionary of words and sentences or sentence portions;
- second means for receiving a text to be translated on a screen field and
- third means for storing the translated text into a second screen field;
- fourth means for progressively searching the words of the text to be translated and comparing them with said first means words for obtaining a progressive translation; and
- means for having an option between a completely automatic form of translation or an interactive one or vice versa before beginning the translation, in which, during said interactive translation option, are additionally provided:
- means for displaying on a disappearing window on said screen:
- the words missing during the word search and
- the sentences translated when each sentence translation is complete; and allow their correction and storage;

characterized in that, during said interactive translation option are additionally provided:

• means for highlighting and storing a translated sentence word or portion, concerning a possible modification by the operator and

- means for highlighting and storing the corresponding translated sentence word or portion,
- means for storing a respective behaviour code of said sentence word or portion;
- for integrating said first storage means forming a dictionary of words and sentences or sentence portions.

Advantages of the new solution

In this way there is the advantage of giving the operator the possibility of progressively implementing during the same translation not only the missing words or the repetitive and common sentences as in the prior art known systems, but also sentence fragments, which thanks to the respective behaviour code given by the operator will be inserted and suitably be self-modified in the next translation sentence.

Thus, thanks to the well known repetitiveness of the expressions in the translation documents, the system automatically and rapidly suits to the new translation field giving, after the first translated text pieces, a resulting maximum translation level and absolutely peerless in quality respect to any known translation system.

The tests carried out gave such amazing results that even after only a little translation the errors in each sentence decrease to the minimum almost immediately reaching the average error/sentence value comprised between 1 and 2, for then reaching the error/sentences value >1.

Preferential variations

The presence of of the following is additionally provided :

AA. Means which provide at least three control and input lines:

• the first upper one as sentence to be translated/sentence portion corresponding to the correction;

• the second one as translated sentence/correct sentence portion;

• the third one as a line for inputting the behaviour code corresponding to the correction.

• advantageously the presence of a line which by means of a series of numbers indicates how the sentence composition was obtained, for single words and word fragments, thus allowing to let the operator know how the system found the translation sources (single words combined with sentence fragments) is provided.

Thus there is the advantage of operating fastly and with the highest speed, having the possibility of carrying out a suitable control before the inputting.

BB. A translation interface comprising at least two fields vertically scrollable in parallel; adjacent and placed one close to the other, one for the document to be translated and one for the translation, being provided means which:

• allow the simultaneous size variation of both fields, one for the text to be translated and one for the translated text, and

• keep the two fields at the same height;

• scroll the two fields in parallel and simultaneously;

• adjust the width of both fields in a proportion inverse to the length of the two documents: original and translation.

Thus the great advantage of being able to control and correct the translation by comparing it substantially aligned with the original.

CC. During the display of an interactive translation window,

• A control which, after selecting a sentence word or portion to be translated in the window, enables the consultation of a parallel

dictionary which suggests alternative translations of the selected word. Thus giving the operator the possibility of consulting on line a respective consultancy dictionary.

• A control for stopping the interactive translation in process, which stores in accumulation in a pair of separate fields

• the already translated and corrected part and

• the corresponding part of the document which had to be translated,

and this is for leaving only what remains of the still untranslated part in the field of the translation in process in order to recover it and the last not yet corrected sentence being translated corresponding to the first sentence of the not yet translated translation part, which at that moment was in the interactive window for the control.

Tt is thus possible to interrupt an interactive translation without losing anything of what was previously translated correctly, and further to intervene in post-correction on the system by acting both on the part still to be translated and on the one just translated. Thus it is possible storing all the corrections made later, allowing to use them again in the next translations.

DD. Means for performing the post-correction after the text translation, on field of the translation, by means which:

• locating the cursor position in the correction area or otherwise if a portion is stored by highlighting, automatically calculate the number of corresponding sentences and words of the translated document from the source and,

• on the basis of absolutely maintaining the punctuation positions, they provide in a screen window:

• the previously highlighted sentence portion in the correction zone or the concerned whole sentence located by the cursor presence since the last correction and

• the corresponding sentence of the document to be translated, in order to allow the operator to: delimit by highlighting the sentence fragment corresponding to the one concerned with the correction and provide a corresponding behaviour code for the storage, substantially in a way similar to what operated during the interactive translation.

EE. Above said pair of fields, a control bar is provided for the control operations substantially forming a "T"-shaped base interface in which the upper cap of the "T" is the control bar by a combination of buttons and the "T" stem substantially separates the right field from the left field of said pair of fields of the document to be translated and translated document. Thus the whole is combined and integrated in a maximum performance.

FF. Considering that the scanners are always dissociated from the computer and considering that this is caused by the dimension of the scanner and by the practical impossibility to manipulate sheets within the computer itself, it was thought to associate to the computer itself a scanner integrated in the case of the computer, and to avoid said dimension of the manipulation of the paper sheets to be read, it was innovatively thought to adopt the sideways entry and exit of the paper sheet, the all associated to OCR system for characters recognition.

In this way the paper document to be translated is automatically loaded in the machine and in the translation system for eventual control, rectification and following translation.

The result of this structure substantially involves the possibility of integrating the scanner with the computer itself and therefore a sensitive improvement of the total time for effecting the translation from a paper document.

GG. By using this advantageous and innovative system it is possible to also apply the respective printer on the opposite side of the scanning apparatus.

Description of at least one embodiment of the invention

These and other advantages will appear from the following description of a preferred solution, with the aid of the included drawings, whose details are not to be considered limitative but only given as examples.

Figure 1 is a view of the translating computer.

Figure 2 is a sectional view of the scanner body inserted in the computer case.

Figure 3 is a view with blocks scheme of the computer structure and working system as in previous figures.

Fig.4 is a view of the image that appears on the screen during the interactive translation and of the window, for the control, correction and self-learning of the portion concerned with the correction.

Fig.5 is a visualization of the completed translation, for the final checking and following eventual post-correction.

Figs. from 6 to 9 concern a series of subsequent phases of the translation process in the interactive-automatic way, by using a module in the specific case a bi-directional one recalled by the Multilingual main management system (Fig.4-5) "English-Italian-English", bi-directional module, being there a plurality of these

modules according to the possible combinations between the different languages and recalled time by time by the main system, each module being able also to operate singularly without the assistance of the management system or main management.

Figure 10 represents one of the cards showing the interactive storage means of the words and sentence fragments that characterize the system.

Figure 11 represents the option card for the choice before the translation of the desired work domain, technology, medicine, agriculture, etc.

Figure 12 represents the storage device of the new teaching words and sentence fragments encoded during the interactive correction operation.

Figure 13 represents the choice device of the work sector divided in a plurality of dominions from 1 to 33 with a customizable optional 34 in the specific case the sector 10 (electronics) being selected .

In the case of figures 4 and 5 only one sentence was quoted for simplicity, but it is evident that because sliding fields are involved, the document to be translated may be a multipage one.

According to the figures and in particular referring to Fig.1 it is noticed that the computer 1 has a desktop parallelepiped-like shaped with frontal entry for disks, CD etc. (11); side entry according to the invention for scanner (12) and respective outlet on the same side (13) of the scanned sheet.

The printed sheets exit with feeding of the same paper on the side of the scanner (12) being able be provided on the other side (opposite side) or by feeding by extractable underlying drawer always on the side.

The computer 1 obviously is provided of means for realizing a complete operative element with keyboard 2, mouse 3 and monitor or screen 4 both in traditional version and in version "LCD" or other equivalent.

The scanner group (122) is integrated in the computer case (1) and is controlled by the push-button (14), and in a simplified version, the paper sheet (P) enters from the side M1 and comes out through the side M2 to then be conveyed by conveying rollers:

- in the solution of Fig.1 in exit from the same side by 180° rotation, thus avoiding to make the paper sheet pass under or over the mother card of the processor;
- in an lternative solution with exit on the other side, where a printer group for points line of known art having the same substantial shape of the scanner of Fig.2 can be provided.

In such a case it is possible, by using the other push-button (15), to load from the scanner side (12) a white paper sheet "P" to make it come out as printed from the opposite side.

The printing group is not illustrated as it is of known art and substantially similar to that of the scanner where in the place of the scanning unit (127) a printing unit (e.g. an ink-jet or thermal one) is installed.

In particular the scanner group (121) is of the static type and protected in a case (122), and the sheet is made to scroll within it (P) entering into one side (M1) and getting out from the other one (M2).

A step motor controlled by the computer (15-PC-CPU) or separate processor ((14-OCR-CPU - 123), is provided for such purpose and it is operated by the control button external to the computer (14).

The motor (123) tows by belt 124 respective paper traction rolls (125), placed along bearing transversal axis (125') and operating by idle counter-rolls (1261), on an openable countercase (126) for the inspection and eventual extraction of the jammed sheet during the advancement.

A paper-presser 127 is provided in the lower countercase (126) to press the advancing paper against the linear scanning unit of known art (127) that includes the lighting device and the device to send the reading to the respective processor (14-OCR-CPU) or alternatively more simply to the same processor of the computer (15-PC-CPU) where by known OCR program the reading is captured and transformed in text "WP" for the translation or in case of a drawing, stored separately in a scanned documents storing folder (OCR or not).

The structure of the new translating computer or translation station or translation desk, therefore preferably includes said characteristics and at least (See Fig.3):

- in the desktop parallelepiped case (1):

• a central processor (15-PC-CPU) with respective management card and control which is connected to;

Memory (RAM 16)

Disk fixed memory (17-HDM)

Extractable memories such as:

- Magnetic memory disks (18-FDD)

- Optic memory disks (19-CDD);

The whole including at least a system or programme OCR (121 - OCR), and additionally being able and preferably providing a second processor for the separate treatment of the scanning (14-

OCR-CPU) which always controls the scanning group (121).

Externally, as already said, the processor card (15 - PC-CPU) is linkable to the keyboard (2-KB), mouse (3-MAUS), and Screen (4-DIS).

In case of the presence of the second processor "dual processor computer", a processor will serve to the normal translation routine of (15-PC-CPU) and a processor (14 - OCR - CPU) which operates in parallel and is therefore also able to operate on the storage while the translation by the main processor continues.

Thus it is possible having work overlaps and while one translates or works with the computer in WP, also doing other work, for example scanning, printing and other.

Coming back to Figures from 6 to 9 it can be noticed that, in the specific case the bi-directional module "English-Italian-English" is indicated, able to operate also as "stand alone" and indicated with F1, being there many of these modules, each for language couples combination and having the same configuration with adjacent "T"-like parallel fields couples with the control bar placed on the upper part.

Where the control types (always virtual push-buttons) are obviously different.

The translation phases with interactive self-learning are the following ones:

a1. Introduction of the English text in the left field in the desired way (import, copy and paste, writing or also coming from the automatic scanning system with characters recognition system (121-OCR), choice of the interactive translation mode (total quality) by pushing the button TQ and beginning of the translation;

a2. after the automatic translation of the first sentence, said interactive window 46 appears automatically having indicated (Fig.6):

- in first line a numbers line that indicates in the specific case that the sentence has been translated word by word (1*4=4), not having found prememorized sentences portions (in the case of Fig.4 instead the sentence, longer, had the code 1*3+6+1*1+3+3 that means = the first three words translated singularly, then a 6 words string translated, then a single word and then two strings of 3 words each. The puzzle thus made up has given the resulting sentence that as it can be seen is of enough acceptable quality.;
- in the second line the sentence being translated;
- in the third line the automatically translated sentence to be controlled.

a3. The operator carries out the correction of the non appreciated sentence portion (computer system =processing system) that is highlighted (4631 Fig.7);

a4. the operator has either the possibility to go on by pushing "OK" (464) or to get out by pressing "Cancel" (465):

-if he presses "Cancel" the system either optionally asks if he wants to consult one of the words being translated to supply alternatives of translation or it stops the translation by accumulating the translated in accumulator;

- if he presses "OK" the window of Fig.8 appears in which it can be seen that in line 2 only the correct sentence fragment appears and he asks to adapt the correspondent original sentence portion accordingly to line 2, proposing in third line a qualification code;

a5. By highlighting the portion, corresponding fragment of the

sentence being translated (4621) on the first line and by pushing "OK" (Fig.9),

a6. Fig.10 appears where on three lines the operator must check the teaching (4621-4631), in the specific case he corrects from "sofs" (automatically supplied by the processor because it ends with "a") = singular feminine noun in "soms" = singular masculine noun (4632), and by pushing "OK" (464), the teaching is automatically stored in the interactive memory (FM Fig.12), that includes:

- the field of the first fragment word for the research (FM1), the field of the fragment portion following the first word (FM2), the field of the translation (FM3, the field of the behaviour code (FM4), being further provided a personalization field (FM5), in function of the chosen sector or work domain (DM);

a7 Fig.11, the completely and perfectly translated and controlled sentence appears in the left field and the interactive window appears again proposing to the translator the control of the next sentence and so on.

With this system it was found:

- a practically perfect translation controlled by the operator;
- a progressive teaching of the sentence fragments concerning the corrections avoiding the computer to repeat the previous errors;
- the translation time is greatly reduced, going over 50% and with maximum quality.

In case in the Tq="total Quality" system, no more substantial errors were found (as for example the repetition of good translations as from window of Fig>.11, it will be possible to opt for the automatic translation and post-correction ="postediting", in which always with the same method it will be possible to memorize the respective

corrections.

In the preferential solution the scanner (121) is substantially placed on the side and arranged for a sheet path substantially around of the scanning head (127), being the sheet in scanning (P) obliged to follow a substantially "C"-like path for entering into and getting out from the same side d, on the computer side, turning around the scanning head (127). In this way there is the very great advantage, of being able to extract the central body of the scanning group (122) that to such purpose is laterally enclosed within the "C" -like housing (126), for easily carrying out the maintenance and extracting an eventually jammed sheet.

In fact the computer is characterised in that said scanner group (121) is substantially made up of a substantially "C" -like case as paper guide (P), external (126), where the internal group (122) containing the reading head (127) and the paper advancement system (123-124/124'/124"-125) is inserted and laterally extractable.

Claims

1. A Machine translation system using a omputer translator of the type in which is provided the prearrangement of:

- first storage means of words and strings of more words with respective correct translations forming a dictionary of words and sentences or sentence portions;

- second means to receive and store a text to be translated in a screen field or second storing means (4-45-455) and

- third means to store the translated text in a second screen field or third storing means (456);

- fourth means to find in progression the words of the text to be translated and compare them with the words of said first means to obtain a progressive translation and:

- means to opt from a completely automatic kind of translation to an interactive translation or vice versa, before beginning the translation,

in which :

during said interactive translation option, the following are further provided:

- means to display in a display window (46) on said screen (4):

- the words lacking during the research of the words and

- the translated sentences at the completion of the translation of each sentence; and allow their correction and storage;

characterised in that, during said interactive translation option, the following are further provided:

- means to highlight (F2) and store a translated word or sentence portion (4631), concerning an eventual change of the operator and

- means to highlight and store the corresponding word or sentence

portion (F4-4621) of the sentence to be translated (462), and

- means to memorize a respective behaviour code (F5-4632) of said translated word or sentence portion (4631);

to integrate said first storage means forming a dictionary of words and sentences or sentence portions (FM; FM1,FM2,FM3,FM4,FM5).

2. Translation system according to claim 1. characterised in that in said interactive window (46) at least three sentences lines/fragments or control and input strings are provided:

- the first as a fragment (4621) of the sentence to be translated (462) corresponding to the correction made (4631);

- the second as a portion concerning the correction of the translated sentence (4631);

- the third as behaviour code (4632) corresponding to the portion concerning the correction (4631).

3. Translation system according to any of the preceding claims where in said interactive window (46), a line representing a series of numbers (461) is further provided, in which the number are represented in logic succession, with:

- traits of single words translation (1*n) +

- traits of words sets translation (n)+.

4. Translation system according to any of the preceding claims, characterised in that it includes a translation interface (45) that includes at least two fields (455-456) vertically scrollable in parallel (4511-4561); adjacent and placed side-by-side, one for the document to be translated (455) and one for the translation (456), being provided means that:

- allow the contemporary variation of both fields dimension, one for the text to be translated and one for the translated text, and

- maintain the said two fields at the same height;
- scroll the two fields parallel and simultaneously;
- proportion the width of both fields in inverse proportion to the length of the two documents: original and translation.

5. Translation system according to any of the preceding claims charactgerized in that during the exposition of the interactive translation window (46), are further provided:

- control means that, after selection of a word of the sentence or portion to be translated in window, activates the consultation of a parallel dictionary that suggests alternative translations of the selected word., thus giving the operator the possibility to consult on line a respective consultation dictionary;
- stop control means of the interactive translation in course, which stores in accumulation, in separate couple of fields:
    - the part already translated and corrected and
    - the corresponding part of the document that had to be translated,

6. Translation system according to any of the preceding claims characterised in that means for carrying out the post-correction after translation of the text, on the field of the translation, are further provided means that:

- determining the position of the cursor in the correction area or otherwise if a portion is stored by highlighting, calculate automatically the number of the corresponding sentences and words of the translated document, from the origin and,
- on the base of an absolute maintenance of the punctuation positions, supply in a screen window:
- the sentence portion previously highlighted in the

correction area or the whole concerned sentence located from presence of the cursor since the last correction and

- the corresponding sentence of the document to be translated, in order to allow the operator to: delimit by highlighting the sentence fragment corresponding to the one concerned by the correction and supply a corresponding behaviour code for the storage, in way substantially similar to that used during the action of the interactive translation.

7. Translation system according to any of the preceding claims characterised in that above said fields couple (455-456), a controls bar (451, 452, 454, ...) is provided for the control operations forming substantially a "T"-like base interface in which the upper cap of the "T" is the controls bar which by the association of virtual buttons (451, 452, 454, ...), and the shank of the 'T" substantially divides the right field (456) from the left field (455) of said fields couple of the document to be translated and translated document.

8. Translation system according to any of the preceding claims characterised in that the teaching (F5: 4621-4631-4632) is automatically stored in the interactive memory (FM), that includes:

- a field of the first word of the sentence fragment, for the research (FM1),
- a field of the sentence fragment portion following the said first word (FM2),
- a translation field for the whole fragment (FM3,
- a behaviour code field (FM4),
- a field of personalization (FM5), in function of the selected sector or work domain (DM) being further provided;

9 . A computer (1), able to operate as a machine translator as per

previous claims, characterised in that:

- a scanner means (121) is inserted in its case, said computer case having an entry of the paper to be scanned (P) placed on the side (12) respect to the front (11),

- the computer or scanner being associated/associable to OCR system for characters recognition.

10. A computer (1), able to operate as a machine translator as per previous claims, characterised in that it has also integrated in its case (1) a printer with side exit of the printed paper (13).

11. A translator bench, able to operate as a machine translator with a computer, scanner end eventually printer, and a translation system/method as per previous claims.

12. A computer (1), able to operate as a machine translator as per previous claims, characterised in that it comprises a scanner (121) substantially arranged on the side and arranged for a sheet path substantially around the scanning head (127), being the sheet in scanning (P) obliged to follow a substantially "C"-like path for entering into and getting out from the same side, on the computer side, turning around the scanning head (127).

13. A computer (1), able to operate as a machine translator as per previous claims, characterised in that said scanner group (121) is substantially made up of a substantially "C"-like case as a paper guide (P), external (126), where the internal group (122) containing the reading head (127) and the paper advancement system (123-124/124'/124"-125 is inserted and extractable.

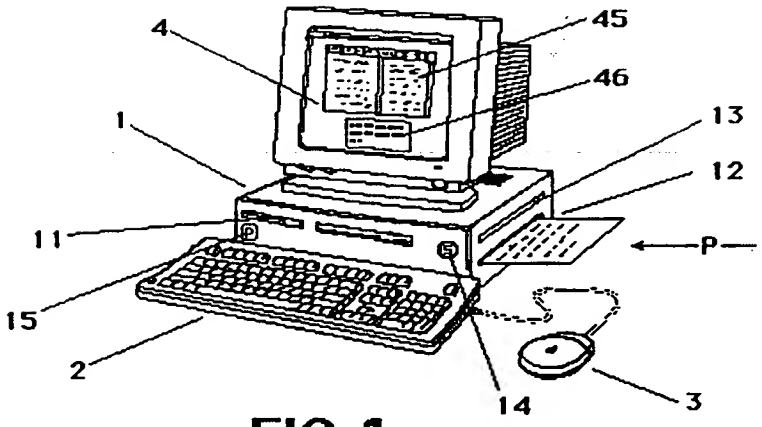

4
45
46
1
13
12
11
P
15
2
14
3

FIG.1

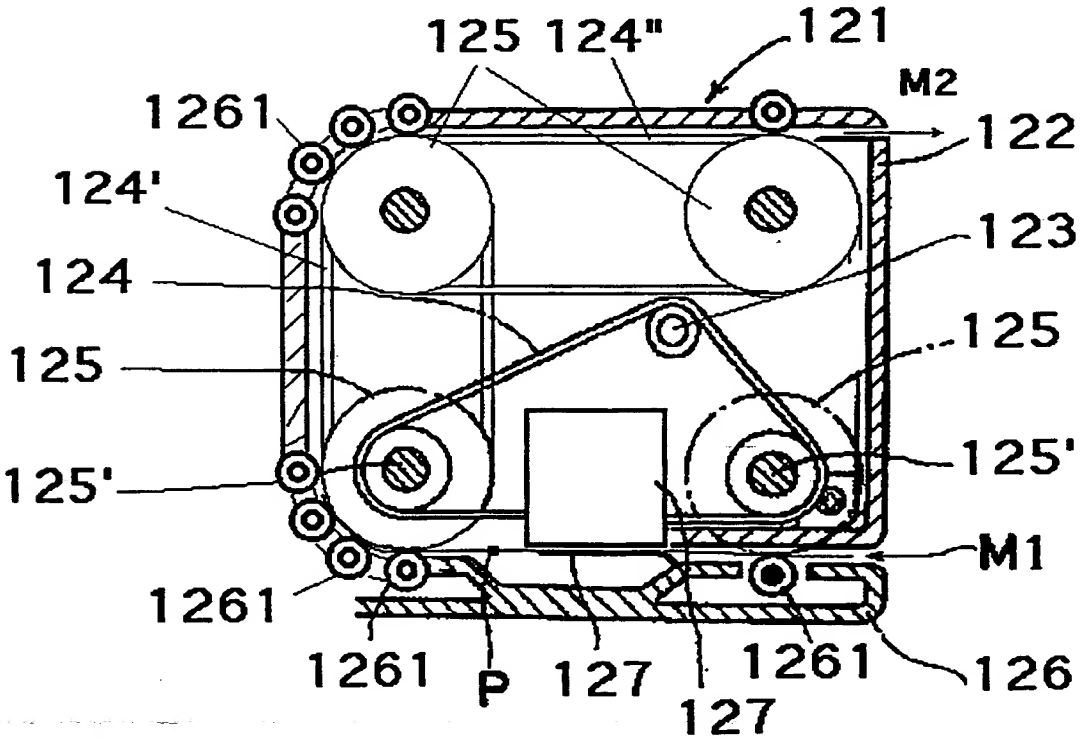
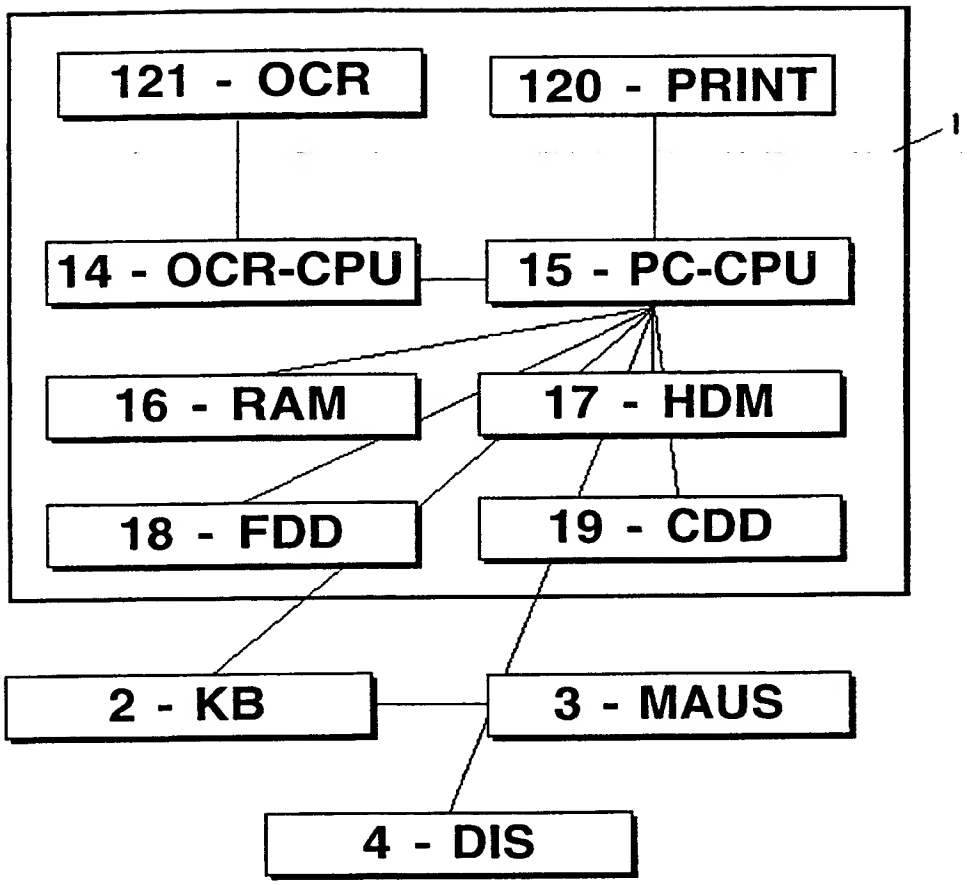

125 124"
121
M2
1261
122
124'
123
124
125
125
125'
125'
M1
1261
1261
P
127
127
1261
126

FIG.2


121 - OCR
120 - PRINT
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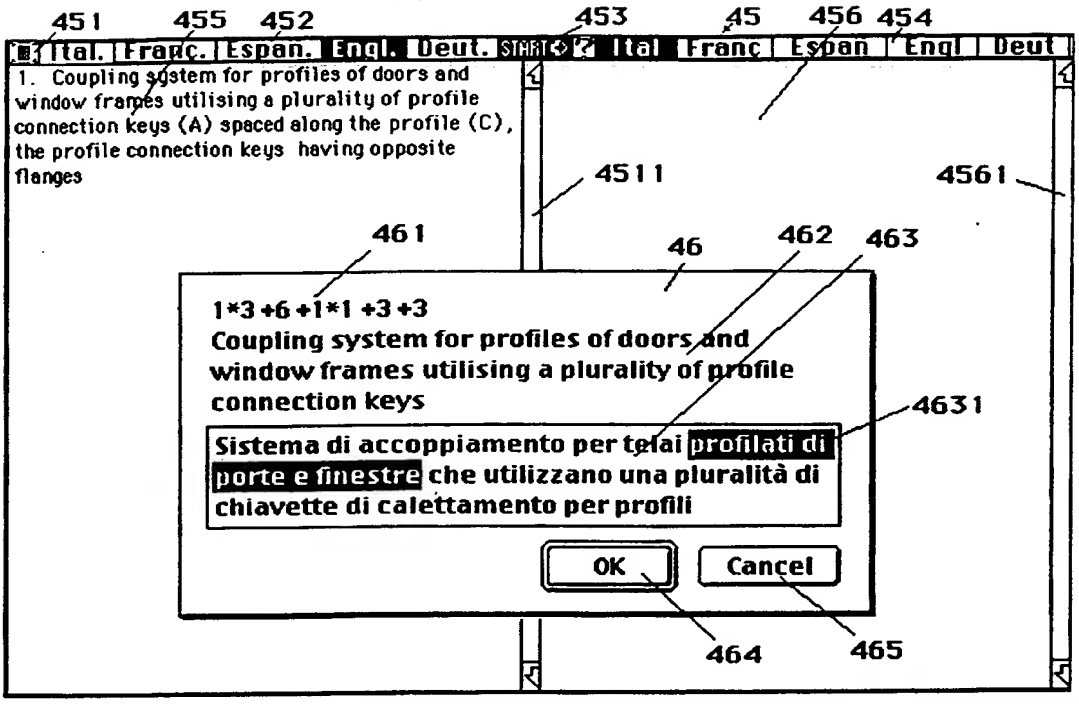
15 - PC-CPU
16 - RAM
17 - HDM
18 - FDD
19 - CDD
2 - KB
3 - MAUS
4 - DIS

FIG. 3


451
455
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456
454
Ital. Franç. Espan. Engl. Deut.
Ital Franç Espan Engl Deut
1. Coupling system for profiles of doors and window frames utilising a plurality of profile connection keys (A) spaced along the profile (C), the profile connection keys having opposite flanges
4511
4561
461
46
462
463
1*3 +6 +1*1 +3 +3
Coupling system for profiles of doors and window frames utilising a plurality of profile connection keys
4631
Sistema di accoppiamento per telai profilati di porte e finestre che utilizzano una pluralità di chiavette di calettamento per profili
OK
Cancel
464
465

FIG.4

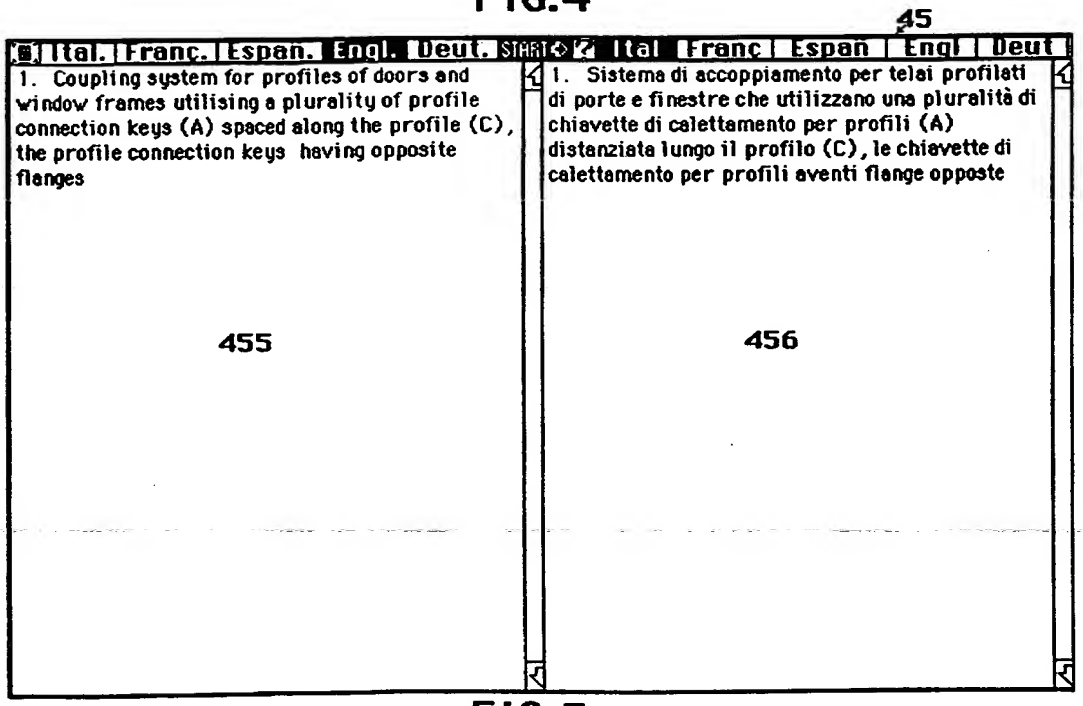
45
Ital. Franç. Espan. Engl. Deut.
Ital Franç Espan Engl Deut
1. Coupling system for profiles of doors and window frames utilising a plurality of profile connection keys (A) spaced along the profile (C), the profile connection keys having opposite flanges
1. Sistema di accoppiamento per telai profilati di porte e finestre che utilizzano una pluralità di chiavette di calettamento per profili (A) distanziate lungo il profilo (C), le chiavette di calettamento per profili aventi flange opposte
455
456

FIG.5

F1

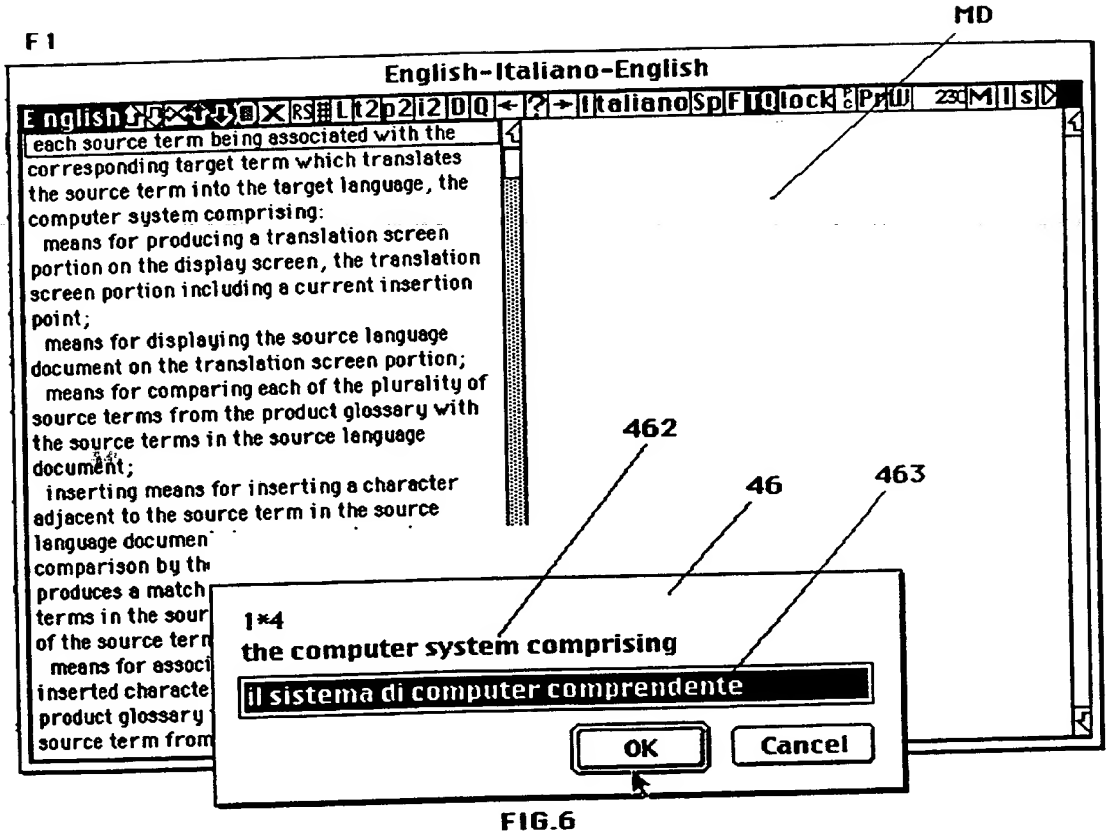

FIG.6

F2

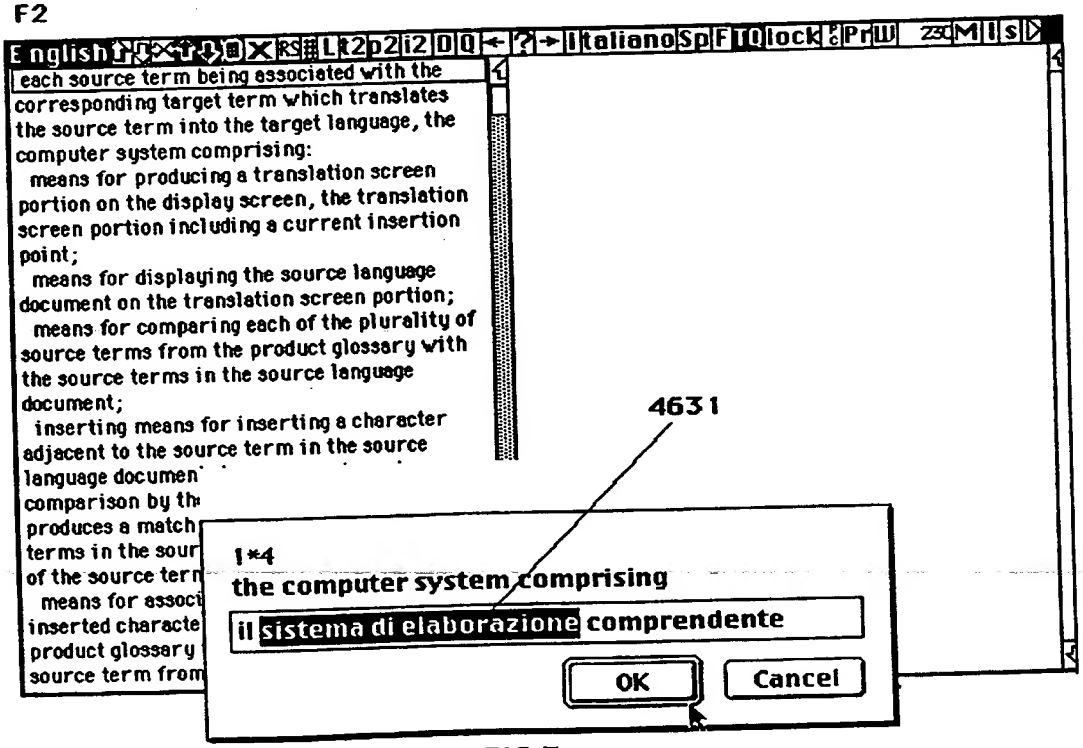

FIG.7

F3

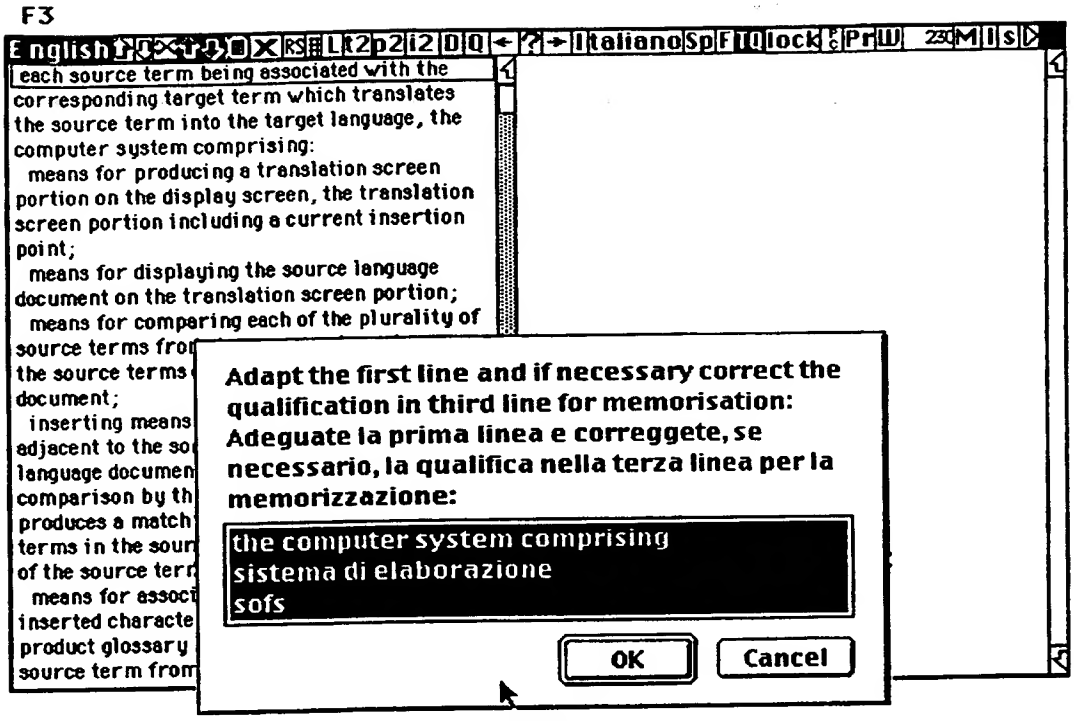

FIG.8

F4

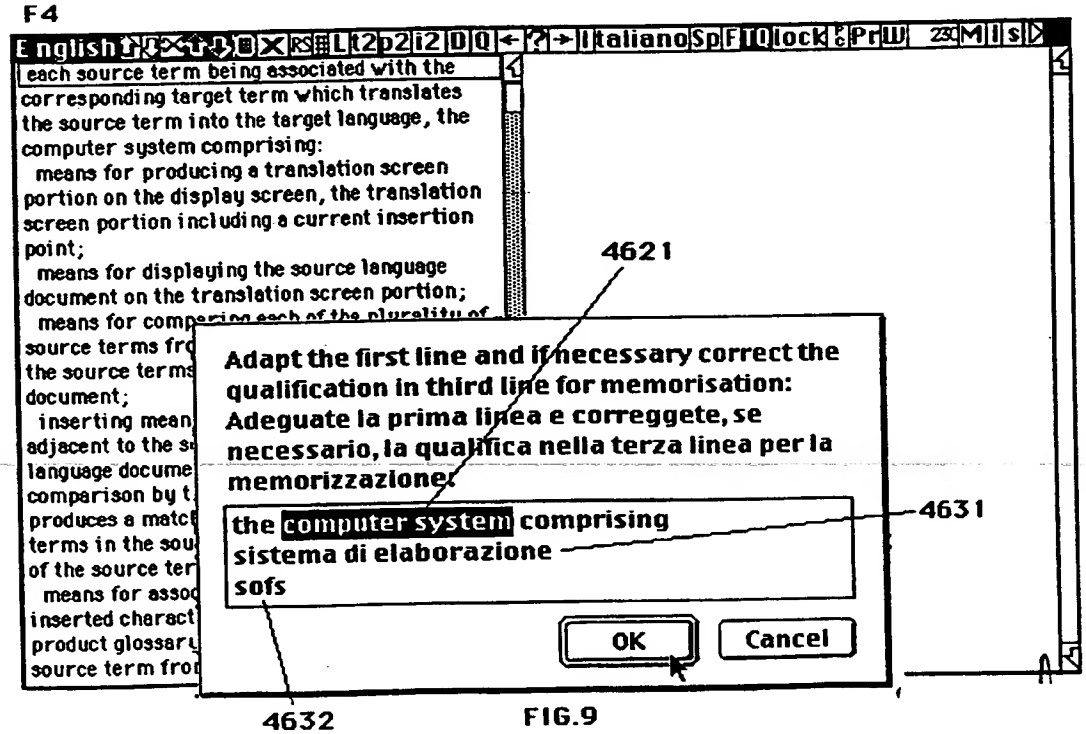

FIG.9

F5

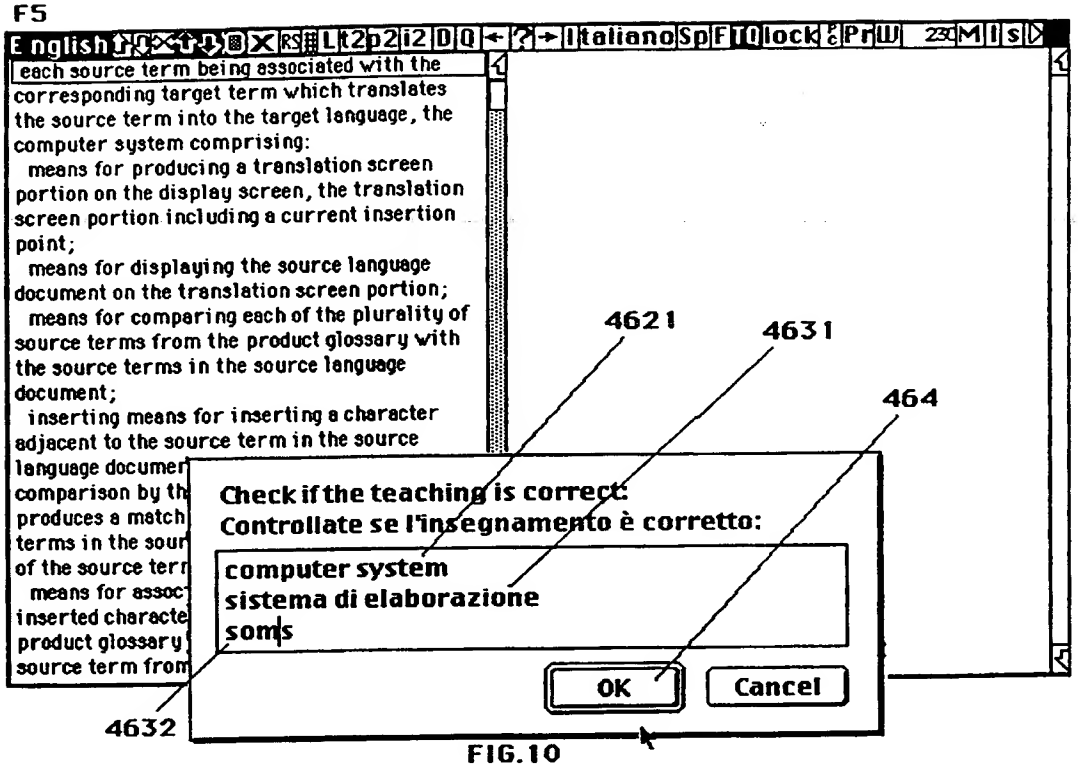

FIG.10

F6

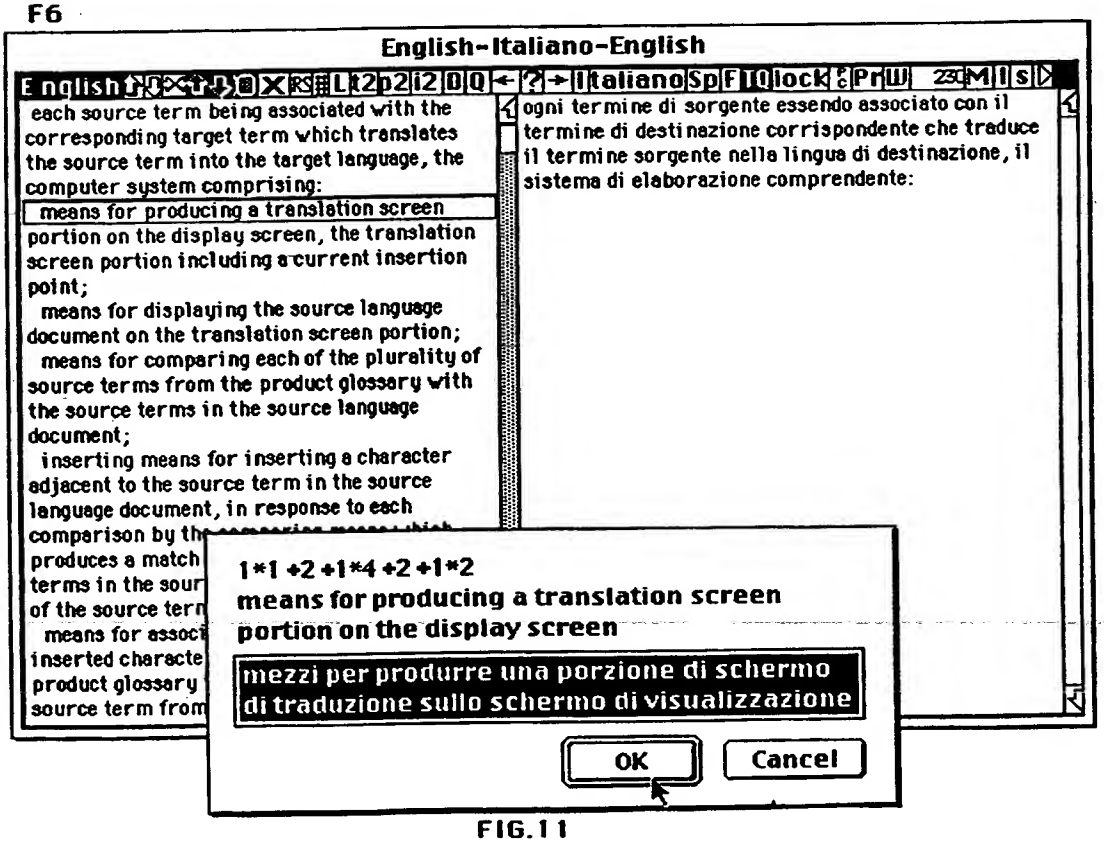

FIG.11

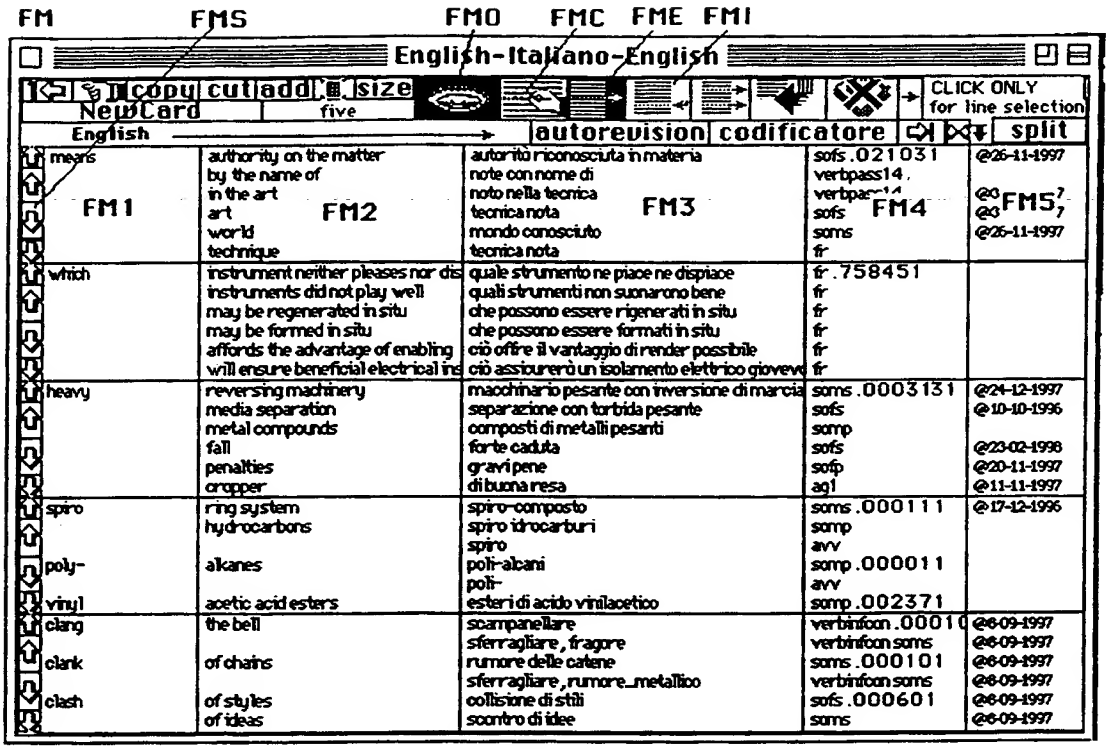

FIG.12

DM

FIG.13

INTERNATIONAL SEARCH REPORT

Intern ıal Application No
PCT/IT 99/00040

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 349 368 A (TAKEDA KIMIHITO ET AL) 20 September 1994 see abstract; claims 1-8 see column 2, line 15 - line 26 see column 7, line 11 - column 9, line 49; figures 7-12 ---	1-8
A	EP 0 176 858 A (SHARP KK) 9 April 1986 see abstract; claims 1-5 see page 16, line 1 - page 29, line 6; figures 6-22 ---	1-8
A	US 5 257 187 A (SUZUKI HITOSHI ET AL) 26 October 1993 see abstract see column 3, line 1 - column 4, line 47; figures 4-6 ---	1-8

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
3 May 1999	12/05/1999

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/IT 99/00040

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 101 349 A (TOKUUME YOSHIHIRO ET AL) 31 March 1992 see abstract see column 2, line 10 - column 25	1-8
A	FR 2 659 461 A (KIS FRANCE SA ;CRASNIANSKI SERGE (FR)) 13 September 1991 see abstract	9-13
A	US 5 063 508 A (YAMADA YOSHIMI ET AL) 5 November 1991 see abstract see column 2, line 10 - line 25	9-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IT 99/00040

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5349368 A	20-09-1994	JP 63106866 A	11-05-1988
		DE 3751784 D	30-05-1996
		DE 3751784 T	05-09-1996
		EP 0265280 A	27-04-1988
EP 0176858 A	09-04-1986	JP 61074069 A	16-04-1986
		JP 1666728 C	29-05-1992
		JP 3032105 B	09-05-1991
		JP 61080358 A	23-04-1986
		JP 1666729 C	29-05-1992
		JP 3032106 B	09-05-1991
		JP 61080362 A	23-04-1986
		JP 61088367 A	06-05-1986
		JP 61088368 A	06-05-1986
		JP 61090268 A	08-05-1986
		JP 61090269 A	08-05-1986
		DE 3587009 A	04-03-1993
		US 5220503 A	15-06-1993
US 5257187 A	26-10-1993	JP 5008466 B	02-02-1993
		JP 63137365 A	09-06-1988
		GB 2199431 A	06-07-1988
US 5101349 A	31-03-1992	JP 2240769 A	25-09-1990
		DE 69031354 D	09-10-1997
		DE 69031354 T	08-01-1998
		EP 0388156 A	19-09-1990
FR 2659461 A	13-09-1991	NONE	
US 5063508 A	05-11-1991	JP 2249064 A	04-10-1990

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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G06F 17/28

A1

(11) International Publication Number: WO 99/45476

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(30) Priority Data:
UD98A000032 3 March 1998 (03.03.98) IT

(71) Applicant (*for all designated States except US*): D'AGOSTINI ORGANIZZAZIONE S.R.L. [IT/IT]; Via G. Giusti, 17, I-33100 Udine (IT).

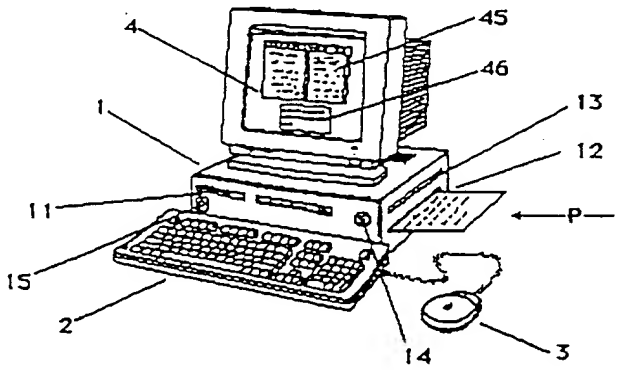
(72) Inventor; and
(75) Inventor/Applicant (*for US only*): D'AGOSTINI, Giovanni [IT/IT]; Via G. Giusti, 17, I-33100 Udine (IT).

(74) Agent: D'AGOSTINI, Giovanni; D'Agostini Organizzazione s.r.l., Via G. Giusti, 17, I-33100 Udine (IT).

(81) Designated States: AU, BR, CA, CN, CU, JP, MX, RU, US, VN, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.

(54) Title: A TRANSLATION SYSTEM AND A MULTIFUNCTION COMPUTER, PARTICULARLY FOR TREATING TEXTS AND TRANSLATION ON PAPER



(57) Abstract

Computer for text treatment and machine translation system and translator, of the type in which the prearrangement is provided: first means for storing words and strings of more words with respective correct translations forming a dictionary of words and sentences or sentence portions; second means for receiving a text to be translated in a screen field (4–45–455); and third means for storing the translated text in a second screen field (456); fourth means for searching in progression the words of the text to be translated and compare them with the words of said first means to obtain a progressive translation and: means to opt from a completely automatic translation form to an interactive translation or vice versa, before beginning the translation, in which, during said option of interactive translation, are further provided: means to display in a disappearing window (46) on said screen (4); the words lacking during the research of the words and the translated sentences at the completion of the translation of each sentence; and allow the correction and storage; the translation apparatus involving a scanner integrated in it with OCR for the side direct loading of the sheets to be translated (P–12–13).

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- ☐ OA **OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

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- ☐ KR Republic of Korea
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- ☐ LT Lithuania
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- ☐ MD Republic of Moldova
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Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is: national application: country	regional application:* regional Office	international application: receiving Office
item (1) 3-03-1998 3 MARCH 1998	U098A000032	ITALY		
item (2)				
item (3)				

☐ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office)* identified above as item(s): _____

* *Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.*

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Request to use results of earlier search; reference to that search *(if an earlier search has been carried out by or requested from the International Searching Authority)*:
Date *(day/month/year)*: 10-08-1998 Number: RS 100827 Country *(or regional Office)*: IT EPO DEN HAAG

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This international application contains the following **number of sheets**:

request	:	3
description (excluding sequence listing part)	:	25
claims	:	5
abstract	:	1
drawings	:	7
sequence listing part of description	:	
Total number of sheets	:	41

This international application is accompanied by the item(s) marked below:

1. [X] fee calculation sheet
2. [X] separate signed power of attorney
3. ☐ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. [X] priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. [X] other *(specify)*: copy payment of the fees

Figure of the drawings which should accompany the abstract: 1

Language of filing of the international application: ENGLISH

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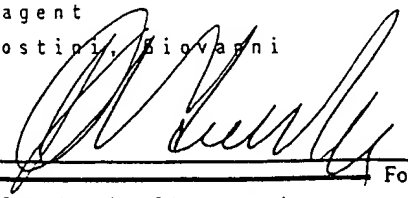
Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

Udine
February 15, 1999

The agent
D'Agostini, Giovanni



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1. Date of actual receipt of the purported international application:	2. Drawings: ☐ received: ☐ not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	
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